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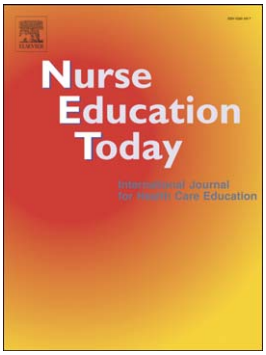

Managing medical emergencies in mental health settings using an interprofessional in-situ simulation training programme: a mixed methods evaluation study

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MANAGING MEDICAL EMERGENCIES IN MENTAL HEALTH SETTINGS USING AN INTERPROFESSIONAL IN-SITU SIMULATION TRAINING PROGRAMME: A MIXED METHODS EVALUATION STUDY

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ABSTRACT

Background – In the UK, people with severe mental illness die up to 20 years earlier than the general population, prompting increased focus on physical health in mental illness. However, training for mental health inpatient staff to meet patients' physical health needs has not received the same attention, with physical health training often being reactive and lacking evidence of effectiveness.

Objectives – To evaluate an interprofessional, in situ, simulation training intervention for managing medical deterioration in mental health settings. Investigating the impact of training on: 1. Participants' knowledge, confidence, and attitudes towards managing medical deterioration; and 2. Incident reporting, as an objective index of incident management. Participants' perceptions of the impact on their practice were qualitatively explored.

Design – This evaluation employed a mixed-methods pre-post intervention design.

Participants & Settings – Fifty-three healthcare professionals participated including: mental health nurses, psychiatrists, healthcare assistants, and activity co-ordinators from two busy psychiatric triage wards in South London, UK.

Methods – The intervention comprised eight half-day sessions delivered weekly across two wards. Structured surveys assessed participants' knowledge, confidence, and attitudes towards medical deterioration pre and post training. Participants' experience of training was qualitatively captured through post-course surveys and focus groups three months post

training. Incident reporting rates for seven-month periods pre and post training were compared.

Results – Following training, participants showed significant improvement in knowledge (p<.001), confidence (p<.001), and attitudes towards (p<.02) managing medical deterioration. Incident reporting increased by 33% following training. Participants' reported improved confidence in managing medical deterioration, better understanding of effective communication, improved self-reflection and team working, and an increased sense of responsibility for patients' physical health.

Conclusions – Interprofessional, in situ simulation training for medical deterioration yielded promising outcomes for individuals and teams. Simulation is an under-used training modality in mental health, offering a holistic training approach with the potential to provide educational and clinical benefits while supporting workforce resilience.

Keywords

Mental health, medical emergency, nursing training, healthcare education, interprofessional education, simulation, multi-disciplinary teams, psychiatry

INTRODUCTION

People with severe psychiatric diagnoses are prone to physical co-morbidities, including cardiovascular disease, respiratory disease and diabetes (Robson & Gray, 2007), which contribute significantly to their increased mortality, with patients in the UK dying up to 20 years younger than their peers (Doherty & Gaughran, 2014). This momentous health inequality has prompted adaptations to UK healthcare strategy and service provision, particularly in community settings (Mental Health Taskforce, 2016). However, people with severe psychiatric diagnoses may still require inpatient mental health services, which are frequently located off general hospital sites (Mental Health Foundation, 2013). Thus, it is imperative that mental health inpatient staff have the skills to effectively manage both acute medical emergencies and patients' long term physical health needs (Mental Health Foundation, 2013; Mental Health Taskforce, 2016).

Deaths from natural causes in mental health settings are over twice as high as that of prison populations (Coles, Edmundson, & Carmouche, 2015). Inquests of such circumstances cite some common features including: inadequate emergency response training; a lack of, and/or poor use of, lifesaving equipment; and poor team cohesion and communication (Coles, Edmundson, & Carmouche, 2015).

Mental health nurses working in inpatient settings echo these findings, reporting that they feel unprepared and unskilled in managing physical illness (Nash, 2005, 2009; Walsh, 2015). Despite welcoming further training (Robson, Haddad, Gray, & Gournay, 2013), staff report feeling unsupported at a managerial level to do this (Blythe & White, 2012). The need for training is not limited to nursing staff; improved, mandatory acute medicine training for psychiatrists has also been recommended to improve their knowledge, overcoming the

communication barrier between acute and mental health teams (Latoo, Mistry, & Dunne, 2013).

As inquest findings highlight, the management of a medical emergency requires not only the clinical knowledge and lifesaving skills, but the human factor qualities that underpin this work such as effective communication with colleagues to work as a coordinated, interprofessional team (Coles et al., 2015). This is the case across diverse healthcare fields as incident reporting suggests that poor communication and teamwork are central to medical errors (Leonard, Graham, & Bonacum, 2004), particularly when adding the complexity of inter-disciplinary working (Alvarez & Coiera, 2006), which is critical to addressing the interaction between patients' mental and physical health (Mental Health Foundation, 2013; Mental Health Taskforce, 2016).

Simulation Training

Educational research has demonstrated the value of simulation training for improving technical clinical skills such as use of equipment and procedure, alongside improving the human factors based aspects of healthcare such as communication and teamwork (Billon et al., 2016; Cook et al., 2011; Miller, Crandall, Washington, & McLaughlin, 2012; Thomson, Cross, Key, Jaye, & Iversen, 2013). Delivering simulation training in situ has the additional benefits of training whole multi-disciplinary teams together (Weaver, Dy, & Rosen, 2014), while identifying, and addressing, latent threats to patient safety in the environment, such as inadequate equipment or procedures, gaps in knowledge or skills, or poor communication (Jordan, Akroyd, & Rowlands, 2014). Although the value of simulation training is widely recognised and its direct benefit to patients has been demonstrated

(Zendejas, Brydges, Wang, & Cook, 2013), it remains underused in mental health training (Attoe, Kowalski, Fernando, & Cross, 2016; Jordan et al., 2014).

In response to a series of physical health incidents locally and nationally, clinical educators in South London have developed an intensive, in situ simulation-based training course designed to support inpatient mental health teams to manage medical deterioration. As a simulation training, this intervention will aim to improve participants' clinical skills alongside their human factors skills such as teamwork and communication. Furthermore, the delivery of the training in-situ facilitates identification of latent environmental threats.

The training employs simulated emergency medical scenarios, with high fidelity mannequins, and structured reflective debriefing in order to improve clinical skills and human factors. Training interventions of this kind are usually developed in response to a real incident. As such, priority is given to training delivery rather than evaluation. This has led to a lack of evidence regarding the impact of educational interventions targeting physical health care for people with mental illness (Hardy, White, Deane, & Gray, 2011). This study will contribute to this evidence, providing an evaluation of this training intervention delivered to all staff on two psychiatric triage wards in South London.

The aim of this study is to explore the impact of the training on: (1) staff knowledge, confidence, and attitudes towards managing a medically deteriorating patient; and (2) incident reporting in the triage units, as an objective index of appropriate incident management. Participants' perceptions of the training, their own learning and its impact on their practice will be qualitatively explored.

METHODS

Study design

This study was a mixed-methods evaluation of an intensive, in situ simulation training course for interprofessional management of medical deterioration in mental health settings.

Participants

Training was delivered to all staff working on two 16-bed psychiatric triage units in South London. Training was attended by 53 participants across the two triage units including; mental health nurses (n=36), psychiatrists (n=6), healthcare assistants (n=9), and activity coordinators (n=2). Each session was attended by an average of seven participants (range=4-10). All participants had completed Basic or Immediate Life Support training.

Course content

Prior to commencing training, a full risk assessment of the training area was carried out to ensure the safety of patients, staff, and participants. All ward staff were aware that training was taking place and the nurse in charge was informed at the start and end of each session. Ward equipment was used but could be accessed at any time as needed, with additional equipment supplied by the training team.

Training was delivered across eight weekly half-day sessions, two on one triage ward and six on another. The training session began with an introduction to the principles of simulation, before participants were oriented to the high fidelity mannequin and its features (i.e. speech, pulse). Three high fidelity simulated scenarios then followed on topics identified collaboratively as priority training needs including: respiratory arrest, diabetic hypoglycaemia, hanging, and choking. Simulated scenarios involved 2 to 5 participants,

while those not participating watched the scenario via live video-stream in an adjacent room. Each scenario was followed by a structured and reflective debrief involving all participants, using the Diamond model to address human factors, and incorporating brief didactic teaching on relevant topics (Jaye, Thomas, & Reedy, 2015).

The course aimed to increase confidence in working as part of a multi-disciplinary team; develop knowledge and skills in managing medical emergencies, including incident reporting; increase awareness of human factors such as communication, teamwork, and situational awareness; and improve interprofessional collaborative working.

Data collection procedure

Prior to each training session, participants provided informed consent to take part in the study and were informed of their right to withdraw and the researchers' contact details. Participants anonymously completed a course questionnaire battery before and after training. Ethical approval was awarded by the Psychiatry, Nursing, and Midwifery Research Ethics Subcommittee on behalf of the UK Health Department's National Research Ethics Committee.

Three months after completion of the training participants (n=8) were invited to a 1-hour focus group to provide feedback on their experience of training, the impact on individual learning, team development, and clinical practice. The focus group discussion was audio-recorded, with participants' informed consent.

The triage wards involved utilise an online incident reporting system (Datix) to record incidents including medical deterioration. In order to explore the effect of training on

incident reporting, the online system was retrospectively used to identify reporting frequency 7 months prior to and 7 months following the training on each ward.

Quantitative Questionnaire Measures

The training intervention was designed to improve specific clinical and human factors skills related to management of physical health needs in mental health settings. The learning objectives were to improve participants' knowledge of, confidence in and attitudes towards, managing medical deterioration on a mental health ward. Due to a lack of validated tools to evaluate human factors skills or clinical competency the team developed quantitative questionnaires tailored to meet the specific learning objectives of the intervention. The questionnaires were designed using current best practice methods in educational evaluation (Simpson, Kitchen, Lavelle, Anderson, & Reedy, 2017) and are detailed below.

Knowledge - Participants' knowledge of managing medical deterioration on a mental health ward was assessed using clinical vignettes, a method which has been used successfully in previous evaluations of educational interventions (Peabody, Luck, Glassman, Dresselhaus, & Lee, 2000; Peabody et al., 2004; Sowden et al., 2017).

Participants were presented with five vignettes, each detailing a different medical deterioration scenario. Participants were asked to read each vignette and describe what steps they would take to address: 1. symptom recognition and clinical assessment; 2. escalation, 3. planning and treatment; 4. inter-professional communication and handover; 5. incident reporting, 6. staff debriefing, trust policy and procedures. Each category has possible five correct steps. For each correct step detailed the participant scores one point,

participants can have a maximum of five points per category, with a maximum total score of 30 points.

Confidence - Participants' confidence in their own ability to manage medically deteriorating patients in mental health settings was assessed using a 6-item self-report questionnaire, rating statements from 1 (not confident) to 5 (completely confident). This assessed participants' confidence in: knowing policies and procedures; working effectively as a team; understanding the roles and responsibilities of individuals required; communicating effectively; collaborating with people from other professional backgrounds; and managing the situation overall. Self-report confidence measures using Likert scales have been widely used in simulation training evaluation (Billon et al., 2016; Fernando et al., 2017; Thomson et al., 2013).

Attitudes - Participants' attitudes towards managing medical deterioration in a mental health setting were assessed using a 4-item self-report questionnaire, rating statements from 1 (strongly disagree) to 5 (strongly agree). This assessed participants' beliefs about: their role in the process; the importance of inter-professional working; the importance of communication; the importance of this as a skill required by mental health staff. Items 1 and 3 were reverse scored prior to analysis. This assessment method has been previously used in the evaluation of attitudes towards interprofessional working and job role in healthcare (McFadyen, Webster, & Maclaren, 2006; Reid, Bruce, Allstaff, & McLernon, 2006).

Incident Reporting

Frequency data was taken from the local incident reporting system for 7 months prior to and 7 months following the training across three categories pertaining to course content: medication issues; illness and injury; self-harm and suicide.

Qualitative Structured Survey

Following each session, participants completed a structured survey with open-ended questions to provide individual feedback on their experience of the training. The survey assessed participants' perceptions of: the potential benefit of the training to them as healthcare professionals; the benefits to the clinical team; the impact on patient care; and expected changes in their own practice following training.

Focus group

The 1-hour focus group three months after the final training session was comprised of three sections exploring: participants' experience of the training, to ground their memories; the impact of the training on participants' learning and professional development; and any subsequent changes in their or the team's practice, and their views on how this may influence patient care (Graneheim & Lundman, 2004; Pope & Mays, 2007).

Data analysis

Paired samples t-tests using SPSS 21, explored change in participants' knowledge, confidence, and attitudes scores pre and post training. The focus group discussion was transcribed, along with responses from the qualitative survey, and emergent themes were identified through thematic analysis. Due to sample sizes, incident reporting was described rather than statistically compared.

RESULTS

Quantitative Questionnaire Battery

Participants' mean pre and post training scores on the quantitative assessments are displayed in table 1. Paired samples t-tests comparing participants' pre and post training scores revealed that participants' knowledge about how to manage a medical deterioration on the ward improved significantly post training (p<.001), with a large effect size (d=.70). Similarly, participants' confidence in managing medical deterioration also improved significantly (p<.001), with a medium effect size (d=.52). Finally, participants' attitudes towards management of medical deterioration also improved significantly post training (p=.02), with a small to medium effect size (d=.34).

[Insert table 1 here]

Knowledge

Participants showed improvement across all 5 knowledge items (table 1). Items addressing participants' ability to recognise and clinically assess medical deterioration in patients and communicating this information to colleagues from other professional background during handover showed high post training scores (recognition and assessment 74% & interprofessional handover 78%). Items addressing procedures and policy showed very poor pre training scores and, despite improvement, post training scores remained relatively low (incident procedures 31.5% & death procedures 12.9%).

Confidence

Participants reported feeling more confident across all 6 items. The greatest shift in confidence levels was seen in participants' interprofessional collaboration. This was closely followed by their improved overall confidence in managing medical deterioration on the ward and their confidence in understanding policies and procedures. Participants' confidence in their ability to display effective team working showed the least improvement. However, as pre training confidence scores for team working were relatively high, this may represent a ceiling effect.

Attitudes

Although participants' attitudes scores showed significant improvement overall, item level analysis revealed that varying levels of improvement across the 4 attitude questionnaire items (table 1). Participants showed no improvement on item 4 (medical deterioration management as an essential part of the job) and little improvement on item 3 (the importance of communication in managing a medically deteriorating patients). However, in both cases pre training scores for these items were relatively high (4.5+), which may explain the findings. Some improvement was seen in items 1 (seeing medical deterioration management as part of their role) and 2 (medical deterioration management is better done interprofessionally).

Incident reporting

The frequency of incidents reported by staff during the 7 months prior to training commencing (pre-training) and, by comparison, during the 7 months after training completion (post training) are displayed in figure 1. Incidents have been divided into three categories: medication issues; illness and injury; and suicide and self-harm. Following

training, staff incident reporting on trained wards increased by 33%; 39 reported incidents pre training and 52 post training. The increase was visible across all three categories, but most pronounced with suicide and self-harm (figure 1).

As a direct result of training equipment has been checked, updated and re-labelled where appropriate and ward procedures for medical deterioration have been updated.

[Insert Figure 1 here]

Qualitative findings

Qualitative data explored participants' experience of the training, direct learning and development, and how they felt it would influence their practice and that of their clinical team. Thematic analysis of this data revealed five prominent themes: confidence; team working skills; communication skills; reflective practice; and personal responsibility.

1. *Confidence* – Participants frequently reported increased confidence regarding the management of medical deterioration on their ward. Specifically, participants reported improved confidence in their ability to execute specific procedures during a high-risk situation (e.g. '*I now know how to access and use the medical equipment'; 'the training has made me more aware of how to respond to a medical emergency'*). Participants reported being more able to cope with such pressured situations, with participants experiencing more confidence in their own ability to successfully lead their colleagues during a stressful situation, and to effectively follow the lead of others when appropriate (e.g. The training has… *'boosted my confidence in managing a pressurised medical emergency on the triage ward'; 'I feel more*

confident working as a team and following instruction'). Overall, participants reported an increased confidence in both their own abilities, and that of their colleagues following the training, that went beyond just the management of medical deterioration but to routine work on the ward.

2. *Team working skills* – Participants reported an improved understanding of good teamwork, describing the awareness of others' perspectives (e.g. the training made me… '*more aware of others' opinions and observations')* and the importance of clarifying roles within a team (e.g. following the training I will… '*make sure people are clear on their roles*'). They also described shifting the focus away from performance of the individual on a specific task and towards the overall team goal (e.g. since completing the training… *'focus on identifying strengths and weaknesses of the team rather than the individual'*). Since completing the training, participants specifically reported a greater awareness of their colleagues' professional roles, experience, and capabilities. Participants attributed this to the improved team working on their wards following training. (e.g. Since completing the training I have become… *'more mindful of the complexity of team working in healthcare', 'better understanding of working with staff from different backgrounds'*). The improved team working described by participants was not limited to management of medical deterioration but evident more broadly in day-to-day ward activities (e.g. '*working as a team rather than on a course gave us a chance to work well together. This will help day-to-day').*

3. *Communication skills* – Participants reported that the training had provided them with a greater understanding of good communication (e.g. Following the training…*'I know the importance of good communication').* They described feeling more capable of communicating effectively with colleagues particularly in challenging, high-pressure situations that may arise on the wards. Participants made specific reference to communication techniques introduced on the training, (e.g. following training I will…*'use more closed loop communication'*) providing evidence of their improved understanding of such concepts. Participants recognized that their improved understanding of colleagues' roles, experience and capabilities was highly relevant for their improved communication and team working (*'I am more aware of my own communication with others and the important role this plays in teams'; 'I understand that communication can be a barrier to good teamwork').*

4. *Reflective practice* – Following training, participants reported a greater appreciation for reflective practice, both individually and collectively. Individually, participants highlighted the value of being able to reflect 'in action' during clinical care as well as 'on action' following events, showing situational and personal awareness (It was useful…*'being more aware of how intimidating it [not know what to do] can be'*). Participants acknowledged the link between reflection and the subsequent personal and team development. During the focus group, participants highlighted the value of team reflection through debriefing in both supporting colleagues to cope with challenging situations, and improving team performance, clinical care, and patient safety (*'In the debrief…you can go round about how people feel superficially, but then that's the point you need to make sure does anyone need to clarify anything'*).

Participants acknowledged the relevance of reflective practice beyond the context of medical deterioration in improving individual practice, supervision, and team meetings. (*'I will do more self-analysis')*

5. *Personal responsibility* – Participants illustrated a shift in attitude, with increased feelings of personal responsibility for the physical health of patients. This translated to a desire to be well skilled in managing medical emergencies, as well as to check equipment, procedures, and policies oneself, rather than relying on others to complete these duties or making assumptions about these processes (e.g. the training has*… 'prompted me to keep up to with guidelines and procedures'; 'seek out other training courses to update my skills'*). This change in attitudes and understanding was evidenced with improved labelling of green bags, updating equipment, procedures for checking these, and changes to ward policy following training. Furthermore, participants reported a greater sense of *team* responsibility for the physical health of patients on the wards (e.g. Following training I now... '*check medical equipment at start of shift and encourage other colleagues to do the same'*).

DISCUSSION

This study evaluated the impact of an interprofessional simulation training course for medical deterioration in mental health settings, which was delivered in situ to all staff in two psychiatric triage wards in South London. Following training, the staff showed significant improvements in knowledge, confidence, and attitudes towards managing medical

deterioration. Reflecting on their experience of training, staff reported improvements in their clinical working including: feeling more confident to manage medical deterioration in their own practice; having a better understanding of effective communication and team working skills; an improved capacity to reflect on their own practice; and an attitude shift towards taking more personal responsibility for the physical health of patients. At the ward level, the management of incidents on trained wards showed objective signs of improvement following training, as evidenced by an increase in the number of incidents reported by staff. Furthermore, the training resulted in practical changes within the ward including updating equipment and procedures.

Taken together, these findings demonstrate the far-reaching value of the training intervention. The assessment of participants' knowledge and confidence in managing medical deterioration prior to the intervention (pre-course) confirmed the need for training, reiterating the findings of others (Nash, 2005, 2009; Walsh, 2015). Following training, participants demonstrated significant improvement in terms of their ability to recognise, assess, and treat medical deterioration, including improved communication and interprofessional teamwork skills. These are precisely the aspects highlighted as problematic in the management of physical health problems in mental health settings (Coles et al., 2015; Latoo et al., 2013).

Although simulation training is often under-used in mental health settings (Attoe et al., 2016) these findings confirm it's suitability within this context. In contrast to traditional didactic educational approaches, simulation training provides a holistic learning experience; giving participants the opportunity to manage medical deterioration 'hands on' in a safe and

realistic environment, practicing both the technical skills (e.g. resuscitation, equipment management) and the human factors skills that underpin the technical aspects (e.g. communication, teamwork) simultaneously.

Participants' knowledge of policy and procedures prior to training was particularly poor, and despite some improvement following training, it remained an area of concern. That being said, participants did report experiencing a greater sense of responsibility for the physical health needs of patients following training. Therefore it is likely that even if participants were not familiar with policy and procedure knowledge directly after training, when the post course assessment was completed, their sense of responsibility may mean they actively seek out this information themselves. Perhaps dissemination of this content would have benefited from a didactic component in the training. However, as the ward procedures were actively amended as a result of the training intervention itself, it is potentially more beneficial to foster personal responsibility within staff to continually update and challenge their own knowledge. Moreover, one aspect of ward procedure, with regards to medical deterioration management, stated that staff should formally record patient incidents in an online incident reporting system (Datix). Indeed, formal reporting of patient incidents showed a significant increase following training, suggesting that the training did improve some the application of procedural knowledge in staff.

Although the focus of this training was medical deterioration, the participants were able to apply their learning more broadly to other aspects of clinical work. This is evidenced by participants' reflections of training, describing greater confidence in their own abilities and those of their colleagues, supported by a greater understanding of how to communicate

effectively and an insight into the roles, responsibilities, and skills of colleagues from other professions. This demonstrates the impact and value of the training beyond the management of medical deterioration on wards.

The improvements in interprofessional teamwork reported by participants may be further bolstered by the fact that training was delivered to the whole ward team. Participants' trained directly with their colleagues, providing a deeper understanding of their roles, responsibilities and perspectives, including those from other professions. Additionally, the learning points that are identified and discussed in the post-scenario debriefs can be explored further, addressing the particular nuances of the team and the specific issues arising in their unique situation.

Despite the many practical limitations to delivering in situ simulation training on busy psychiatric wards, this approach had the advantage of enabling problems in the environment to surface during the training. This had a direct benefit to the ward environment, with faulty or mislabelled equipment being identified and rectified and wards environments and procedures being adapted. Training delivered in another venue would mean these latent environmental threats would go undetected, impeding the management of medical deterioration on wards, even after staff training. Additionally, in situ training, particularly training with your own team, removes some of the cognitive steps required to take learning from a training environment and implement it in practice.

The findings of this study should be considered in the context of its limitations. Firstly, due to the opportunistic nature of this evaluation the sample size was limited, did not allow for

comparisons between professional groups, nor comparison to an external control group. However, the recruitment of all staff from two multidisciplinary teams in busy triage wards is an achievement, and within group comparisons were designed in line with prevailing methodological approaches from existing literature. Secondly, although initial plans had included an observational assessment of staff management of a medical deterioration post training this was not feasible due to recording restrictions and the ethical and practical limitations of conducting this work in a busy triage ward. As an alternative, we employed a triangulated evaluation approach collecting data including: pre and post training quantitative assessments; post course qualitative surveys and focus group; and incident reporting rates, as an objective measures of procedural management. Future evaluations should give consideration to employing observational assessment tools alongside more longitudinal makers of impact. However, as with all interventions delivered to a team within a large complex system (e.g. UK NHS) confounding variables cannot be fully controlled for, although we can make cautious estimations about impact.

Despite these limitations, this is one of the few evaluations of an educational intervention targeting physical health for people with mental illness (Hardy et al., 2011) and demonstrates the value of simulation training to meet patients' physical health needs. Furthermore, this training intervention has relevance beyond traditional mental health facilities to other settings where physical health concerns are prevalent such as homeless shelters and addiction facilities.

CONCLUSIONS

We have designed a novel in situ, simulation training course designed to train interprofessional inpatient mental health teams to manage medical deterioration. The findings of this evaluation demonstrate that this training is effective in improving the knowledge, confidence, and attitudes towards management of medical deterioration in inpatient mental health staff. Beyond this, it refines the human factors skills that underpin all aspects of clinical working, including effective communication and interprofessional team working, and fosters a sense of personal responsibility within staff. Objective markers of incident reporting, suggest that these self-reported improvements are evidenced in practice. Overall, these findings demonstrate the value of simulation training in mental health settings as it provides a more holistic approach to training, which can ultimately help to develop a more resilient and reflective workforce.

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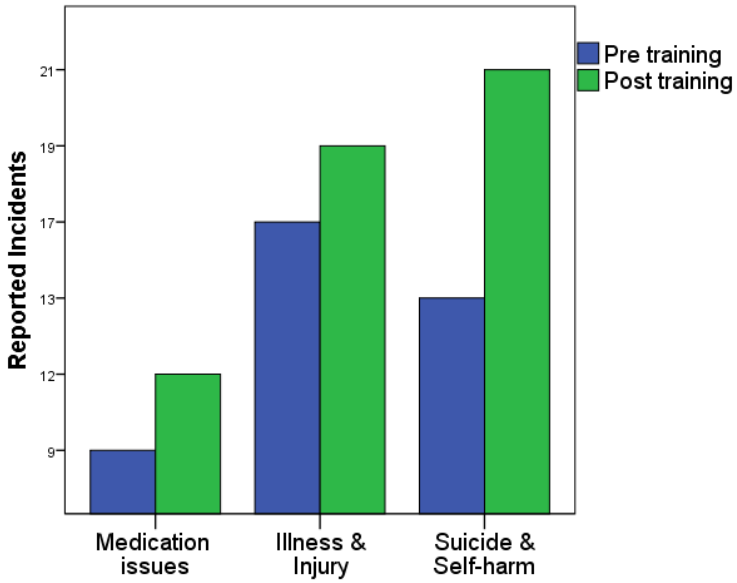
Table 1. Paired samples t-test comparison of participants' mean knowledge confidence and attitudes scores pre and post training. Participants' overall mean scores are displayed alongside item level scores.

	Pre course M (SD)	**Post course M (SD)**	**t**	**df**	***p***	**d**
Knowledge Total (% correct)	***33.5 (19.3)***	***45.9 (16.2)***	***5.4***	***26***	***<.001***	***.70***
1. Symptom recognition and clinical assessment	57.0 (38.7)	74.1 (34.1)	2.7	26	.01	
2. Escalation planning and treatment	35.8 (23.5)	47.3 (23.8)	2.7	26	.01	
3. Inter-professional communication and handover	62.0 (43.0)	78.7 (37.1)	2.9	26	.01	
4. Post incident procedures & policy	16.7 (20.7)	31.5 (15.6)	4.1	26	<.001	
5. Post death procedures & policy	8.0 (9.6)	12.9 (14.1)	1.9	26	.06	
Confidence Total	***3.6 (0.9)***	***4.1 (0.9)***	***4.4***	***29***	***<.001***	***.52***
1. Policies and procedures	3.5 (1.1)	4.0 (1.0)	3.2	29	.003	
2. Effective team working	3.8 (1.0)	4.1 (1.0)	1.8	29	.09	
3. Knowledge of roles **&** responsibilities	3.6 (1.0)	4.0 (1.0)	3.8	29	.001	
4. Effective communication	3.6 (1.0)	4.0 (1.1)	2.6	29	.01	
5. Inter-professional collaboration	3.7 (1.0)	4.3 (1.0)	4.3	29	.<.001	
6. Overall management of a medically deteriorating patient	3.5 (1.1)	4.0 (1.0)	3.7	29	.001	
Attitudes Total	***4.5 (0.6)***	***4.7 (0.5)***	***2.5***	***29***	***.02***	***.34***
*1. Managing medically deteriorating patients is not part of my role	4.4 (1.2)	4.8 (0.5)	2.4	29	.02	
2. Managing medically deteriorating patients is best done inter-professionally	4.4 (0.8)	4.7 (0.8)	1.5	29	.13	
*3. Communication is not an important part of managing medically deteriorating patients	4.6 (0.8)	4.8 (0.6)	0.9	29	.35	
4. Managing medically deteriorating patients is an essential part of my job	4.5 (0.6)	4.5 (0.5)	0.0	29	1.0	

** Items were reverse scored prior to analyses*

Figure 1. Incident reporting rates comparing 7 months pre-training to the 7 months post-training.



Highlights:

- Interprofessional in situ simulation training on medical deterioration was designed
- Inpatient psychiatric teams showed increases in confidence, knowledge and attitudes
- Incident reporting rates 33% higher in 7 months post training versus 7 months prior
- Teams reported improved team working, communication, and reflective practice
- Interprofessional in situ simulation can be highly useful in mental health settings